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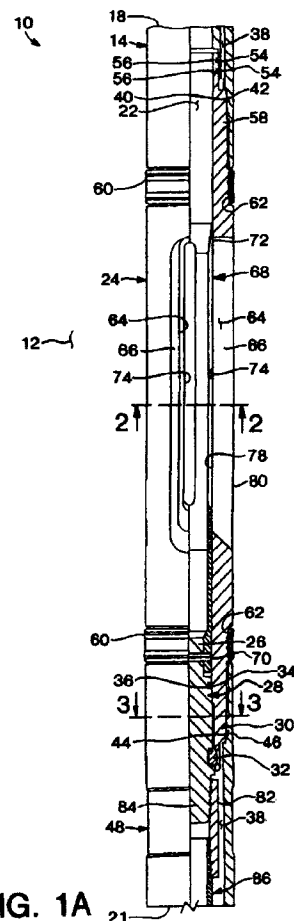
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(54) **Proppant containment apparatus and methods of using same**

(57) A proppant containment apparatus (10) permits continued delivery of a proppant slurry to a subterranean wellbore (12) after failure of a crossover portion of the apparatus during a fracturing operation, eliminating the need to stop the fracturing operation and remove and replace expensive items of equipment after such crossover failure. In one embodiment, the proppant containment apparatus has a tubular crossover member (24) with an internal flow passage (22), circulation port (76), and side wall outlet openings, first (14) and second (16) coaxial tubular structures, the first tubular structure being perforated, a tubular screen (98) positioned between the first and second tubular structures, a ball (102), and a ball seat (104) having a spaced series of grooves (106) formed thereon.



**FIG. 1A**

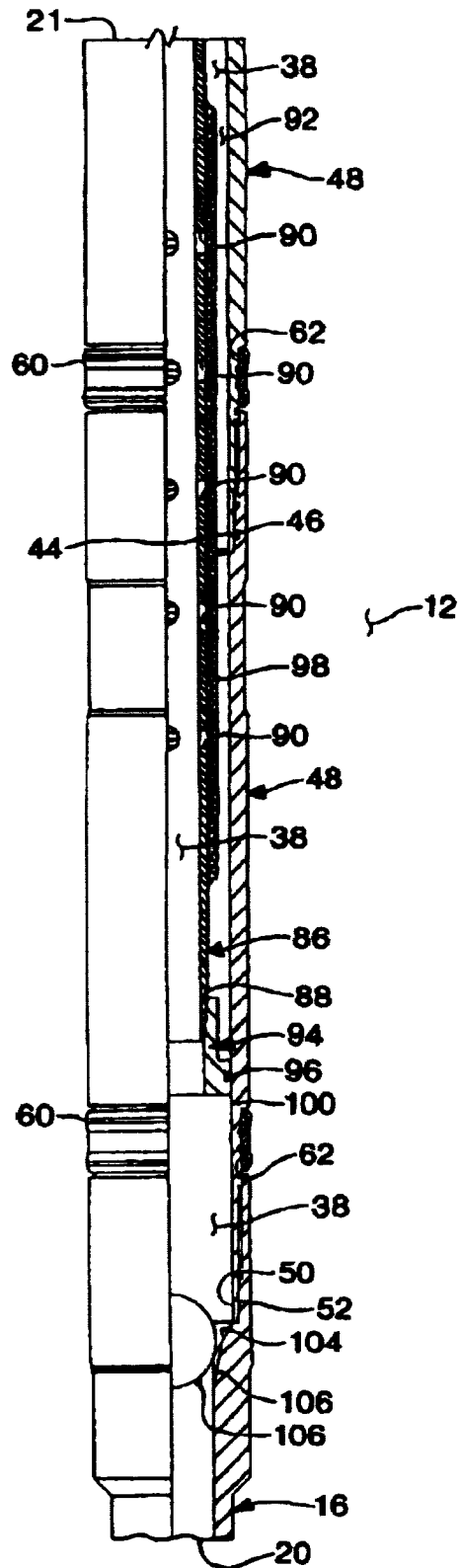


FIG. 1B



European Patent  
Office

EUROPEAN SEARCH REPORT

Application Number  
EP 97 30 0253

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 5 443 117 A (COLBY M. ROSS) 22 August 1995 * column 4, line 45 - column 9, line 12 * * figures 1-8 * ---	1-4, 6, 8, 10	E21B43/26 E21B17/10
A	US 4 921 044 A (ANDREW G. COOKSEY) 1 May 1990 * column 3, line 4-13 * * column 3, line 42-63 * * figures 1, 3 * -----	1-4, 6, 8, 10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E21B
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>13 May 1998</b>	Examiner <b>Schouten, A</b>
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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